Estimating with Percents

Blood Types in the United States

Blood type	*Percent*
O	46%
A	39%
B	11%
AB	4%

Using the data above, make these estimates about people in the United States.

1. In 2010, about _____ children will have type B blood.

2. In 2010, almost 30,000,000 children will have type _____ blood.

3. In 2010, about 2,000,000 children will have type _____ blood.

4. About half the people in the U.S. have either type _____ or type _____ blood.

5. About three times as many people have blood type _____ as type _____ .

Make up some questions of your own using these data.

Estimating with Percents

Predicted Racial Mixture in 2010

Race	*Percent*
African American	16%
Asian	6%
Caucasian	58%
Hispanic	19%
Native American	1%

Using the data above, make these estimates about children in the United States.

1. In 2010, fewer than 1,000,000 children in the U.S. will be _____ .

2. In 2010, about _____ children will be Caucasian.

3. In 2010, there will be about _____ as many Hispanic children as Caucasian children.

4. In 2010, there will be between 3 and 4 million _____ children in the U.S.

5. About _____ more children will be Hispanic than African American.

Make up some questions of your own using these data.

Finding Compatible Fractions

The Eight Largest Islands in the World

Island	*Area (square miles)*
Greenland	840,000
New Guinea	306,000
Borneo	280,100
Madagascar	226,658
Baffin	195,928
Sumatra	165,000
Honshu	87,805
Great Britain	84,200

1. Great Britain is about __________ the size of Greenland.

2. Madagascar is about __________ the size of New Guinea.

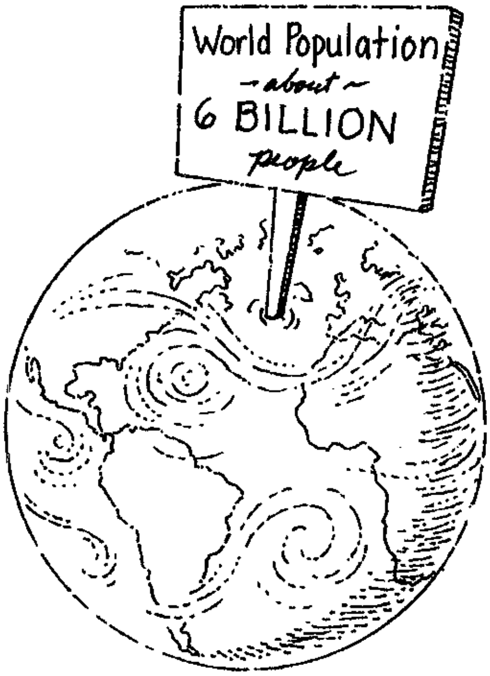
3. Honshu is about __________ the size of Baffin.

4. What island is about $\frac{1}{3}$ the size of Greenland?

5. Madagascar is about __________ the size of Greenland.

6. Honshu is about the same size as __________ .

Finding Compatible Fractions



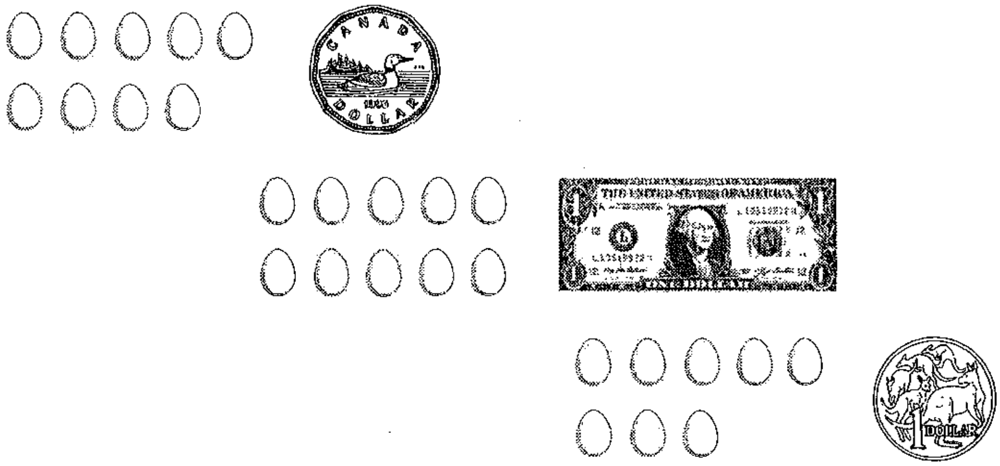
The Eight Most Popular Languages

Language	*Number of speakers*
Chinese	1 billion
English	470 million
Hindi	418 million
Spanish	381 million
Russian	288 million
Arabic	219 million
Japanese	126 million
German	121 million

Different versions of each language are spoken in various regions.

1. About __________ of the world speaks Chinese.
2. About __________ of the world speaks English.
3. About __________ of the world speaks Spanish.
4. About __________ of the world speaks German.
5. About $\frac{1}{20}$ of the world speaks __________
6. About what fraction of the world speaks languages other than those listed?

Money Matters



1. Each of these are dollars. Which of these dollars will buy the most? the least?

2. If you took $5 in U.S. money to the bank and converted it to Canadian dollars, would you receive more than or fewer than 5 Canadian dollars? Why? How about Australian dollars? Why?

3. If you exchanged $10 in Canadian money to U.S. dollars, would you receive more than or fewer than 10 U.S. dollars? Why? How about Australian dollars? Why?

4. A book has a price of $22 in U.S. currency. Would it cost more or less than $22 in Canadian money? How about in Australian money? Why?

5. You can buy 8 sacks of nuts with $1 Australian. About how many sacks of nuts can you buy with a U.S. dollar? with a Canadian dollar?

Money Matters

World Value of the Dollar

This table gives the exchange rate of the U.S. dollar against various currencies.

Argentina	(peso)	1.00
Bangladesh	(taka)	41.60
Germany	(mark)	1.524
Guatemala	(quetzal)	5.965
Iceland	(krona)	64.45
Japan	(yen)	97.63
Mali	(CFA Franc)	484.97
Malta	(lira)	2.853
Mongolia	(tugrik)	460.18
South Africa	(rand)	3.649
Tanzania	(shilling)	592.00
Ukraine	(karbovanet)	179,100.00

Make a list of some of the things this table tells you about these currencies.

People Space

Population of Central America

Country	*Population*	*Area (miles²)*
Belize	209,000	8867
Costa Rica	3,342,000	19,730
El Salvador	5,753,000	8124
Guatemala	10,721,000	42,042
Honduras	5,315,000	43,277
Nicaragua	4,097,000	50,880
Panama	2,630,000	29,157

1. To find the population density of El Salvador, Bill estimated 5600 ÷ 8 and Angi estimated 5400 ÷ 10. State the estimates from these compatible pairs. Which pair would you use? Why?

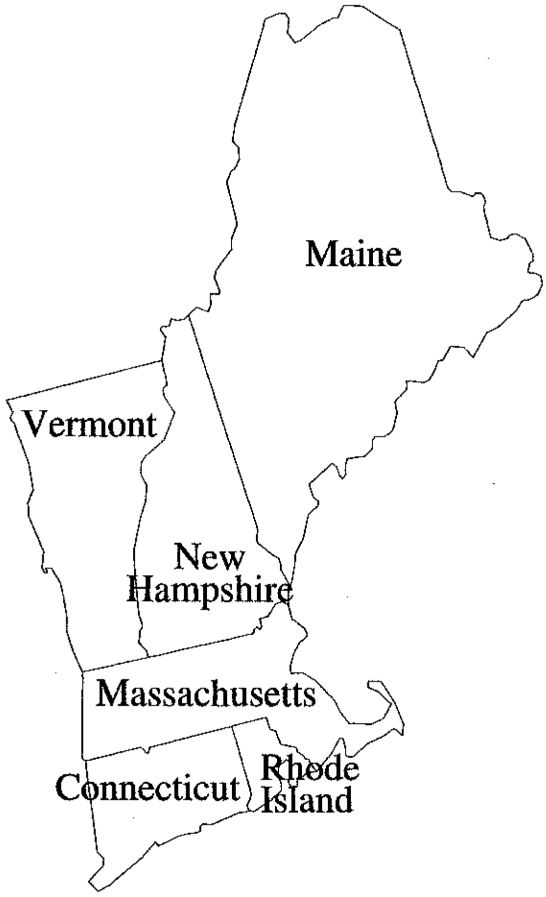
2. Which two Central American countries have the greatest population per square mile? What numbers did you use to make your estimates?

3. Which two countries have the smallest population density? What numbers did you use to make your estimates?

4. Which country was the easiest for you to generate compatible numbers to estimate population density?

5. Arrange the countries in order of population density.

People Space



Population of New England

State	*Population*	*Area (km^2)*
Connecticut	3,277,000	12,549
Maine	1,239,000	79,940
Massachusetts	6,012,000	20,300
New Hampshire	1,125,000	23,230
Rhode Island	1,000,000	2707
Vermont	563,000	24,887

1. Which two New England states have the greatest population per square kilometer? What numbers did you use to make your estimates?

2. Which two states have the smallest population density? What numbers did you use to make your estimates?

3. Which state was the easiest for you to generate compatible numbers to estimate population density?

4. Did you use a power of 10 for the area of any state? Why is a power of 10 easy to use as a divisor?

People Space

Population of Southern Africa

Country	*Population*	*Area (miles^2)*
Botswana	1,359,000	224,607
Lesotho	1,944,000	11,716
Mozambique	17,346,000	313,661
Namibia	1,596,000	318,146
South Africa	43,931,000	473,290
Swaziland	936,000	6704
Zimbabwe	10,975,000	150,872

1. Which has the greater population density, Zimbabwe or South Africa? How did you decide?

2. Which countries have a density of less than 10 people per square mile? Tell how you decided.

3. Which countries have a density greater than 100 people per square mile? Tell how you decided.

4. For which countries did you find it easiest to estimate population density? Why?

5. Arrange the countries in order of population density.

EXPERIENCE 15

Which Is Which?

Number Sense Focus

- Estimation
- Relative size

Number Focus

- Activities 1–3: Whole numbers

Mathematical Background

As visual and physical benchmarks become established in our minds, we use them to make estimations naturally. For example, if you know your home has 1500 square feet of living space, you have something familiar by which to judge the size of other homes. The units in these activities reflect those typically used in the particular sports: soccer is an international sport and the field is usually measured in metric units; baseball is an American invention. A baseball field in the United States is typically measured in feet, whereas in Canada it is likely to be reported in metric units. Working with different measurement systems provides a natural setting for making visual connections and establishing benchmarks between units.

Using the Activities

1. As a warm-up, ask students to estimate the number of pieces of paper needed to cover their desks. This will require that the class agrees on some ground rules—such as "the pieces of paper must be the same size." As students physically or mentally produce estimates, encourage them to explain their strategies. "Now ask: About how many table tennis (Ping Pong) tables will fit on a tennis court?" It may surprise some students that the dimensions of both areas are standard. Encourage students to share their ideas for making this estimate.

2. In Activity 1, reveal the collection of playing surfaces. Make sure students understand that the different surfaces are drawn to scale. Ask

them to list the surfaces in order by area. Ask what the playing areas are. Encourage students to discuss what personal experiences (benchmarks) they used. Ask students to provide specific dimensions for figures they know. For example, the bases in an infield are 90 feet apart. Dimensions for the areas are shown below, but much can be learned by encouraging students to estimate the dimensions and discussing their strategies. You might challenge students to research these dimensions and report their findings.

3. Activity 2 provides similar comparisons of larger playing surfaces.

4. Activity 3 helps connect the concept of an acre to various playing surfaces. Which of the playing fields shown are more than an acre? Ask students to estimate the dimensions of each playing field. You might have students estimate the number of acres for larger fields, such as soccer and football fields or baseball stadiums.

Solutions

Activity 1

A. table tennis table, 9 ft × 5 ft
B. tennis court, 78 ft × 36 ft
C. wrestling mat, 12 m × 12 m
D. baseball infield, 90 ft × 90 ft
E. basketball court, 26 m × 14 m

Activity 2

A. football field, 120 yd × 53 yd
B. soccer field, 100 m × 73 m
C. Olympic pool, 50 m × 21 m
D. ice hockey rink, 61 m × 30.5 m
E. basketball court, 26 m × 14 m

Activity 3

Football and soccer fields have more area than an acre.

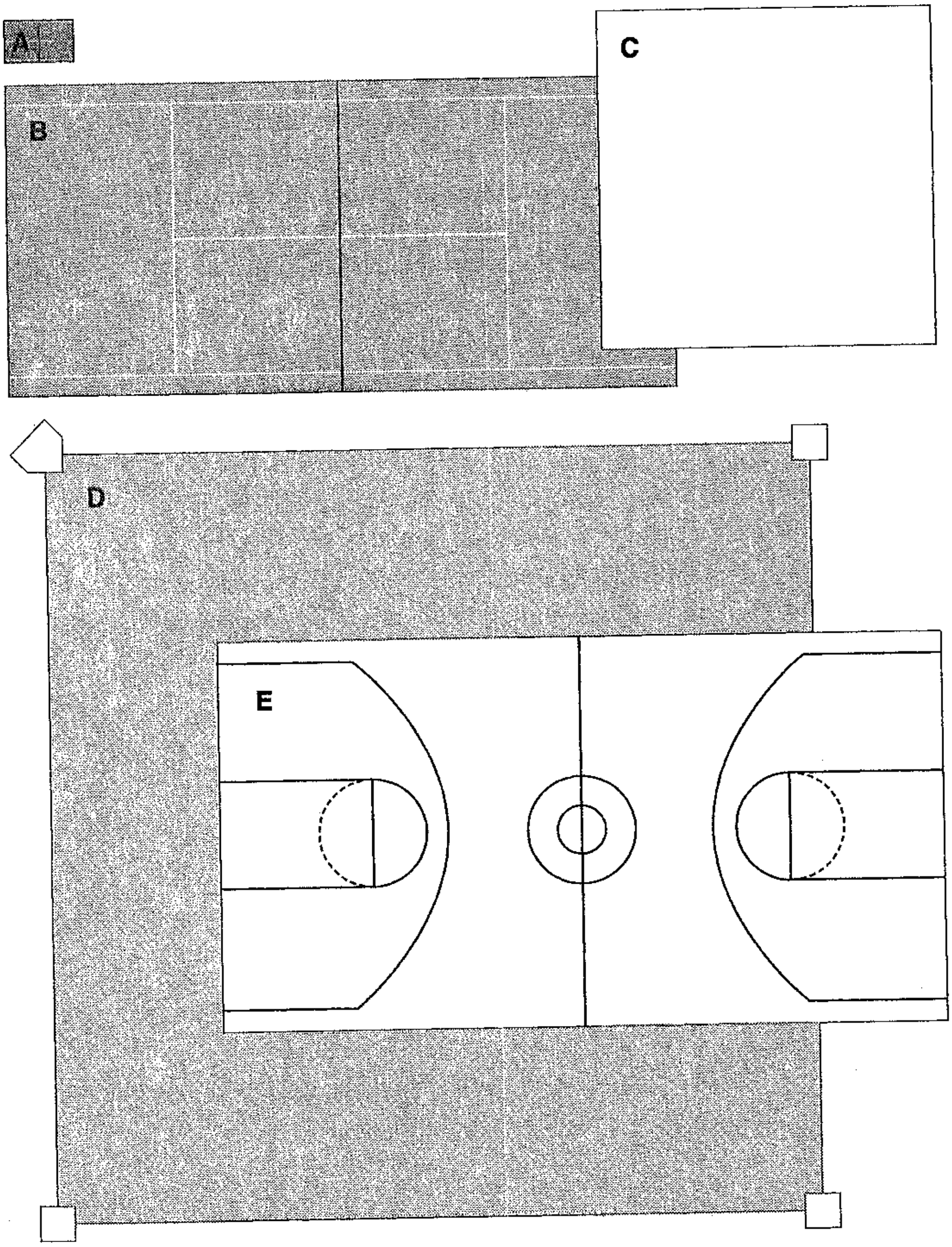
Baseball infield (90 ft × 90 ft) Football field (120 yd × 53 yd) Basketball court (26 m × 14 m) Soccer field (100 m × 73 m) Olympic pool (50 m × 21 m) Tennis court (78 ft × 36 ft)

Extending the Activities

- Ask questions that encourage students to explore percent. About what percent of a basketball court is a wrestling mat? How many times larger than an Olympic-size swimming pool is a football field?
- Ask students to determine whether their school basketball court or swimming pool is regulation size.

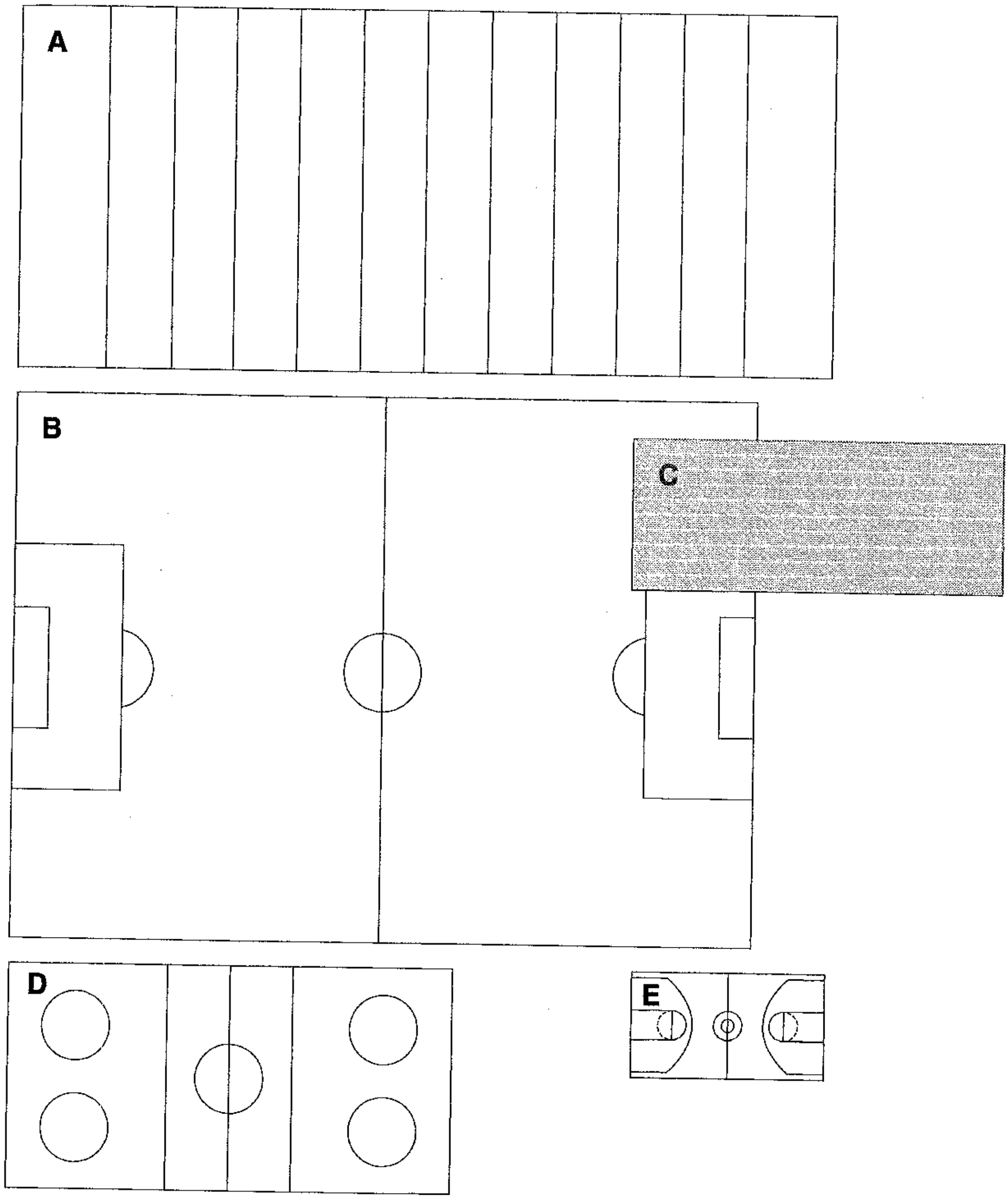
Which Is Which?

The playing areas of five different games are represented here.

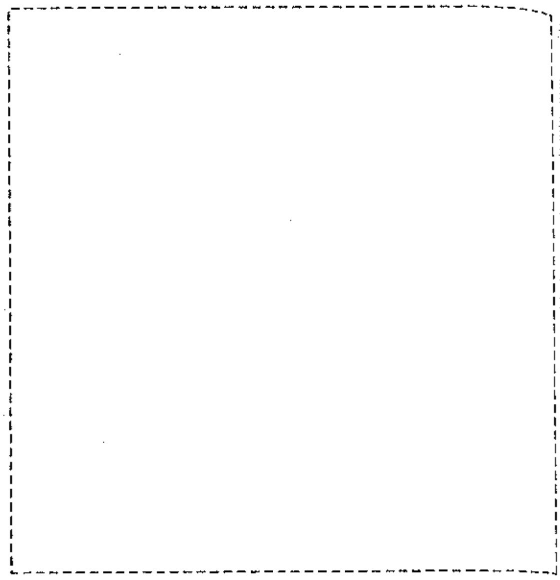


Which Is Which?

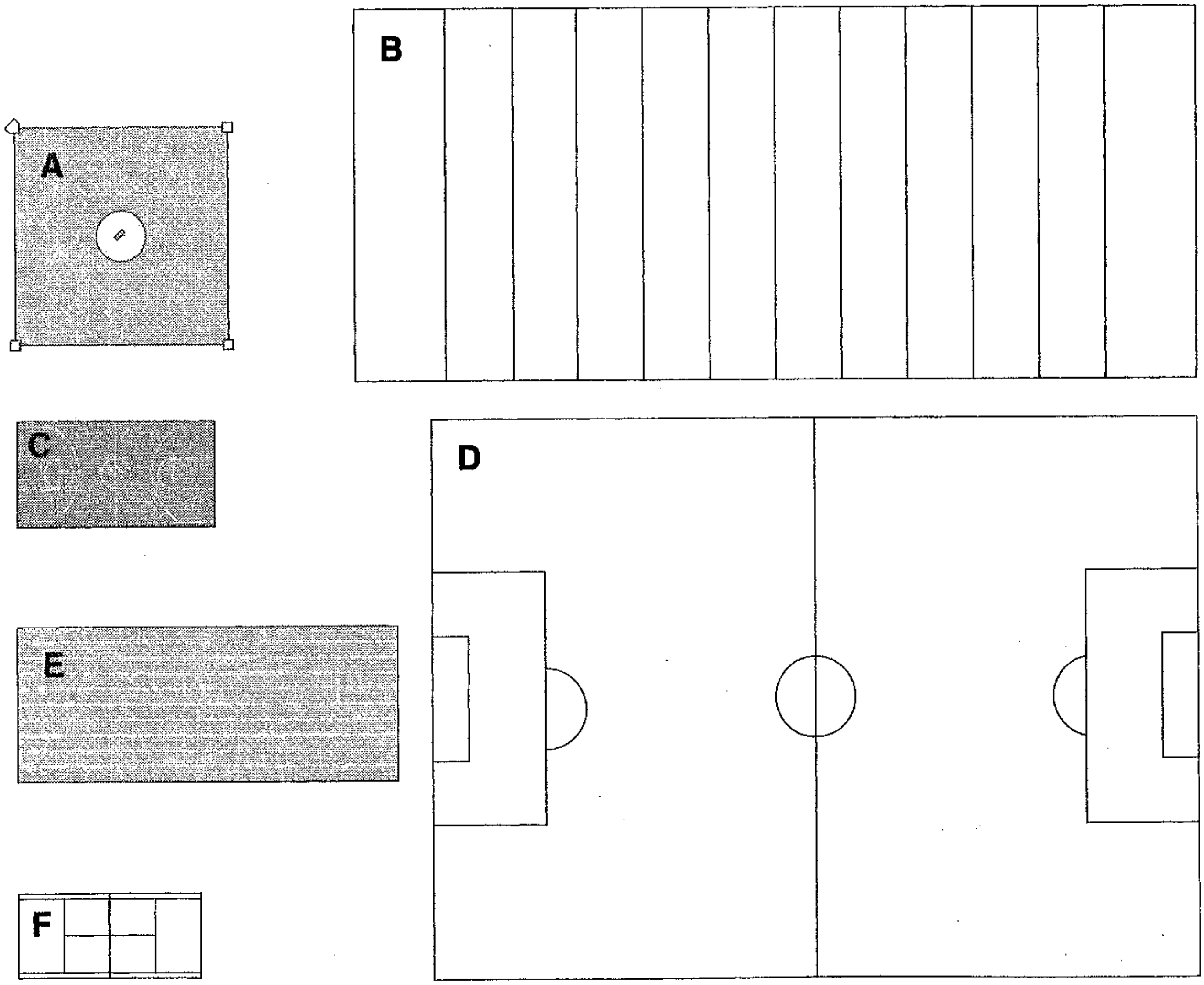
These figures represent other places where different sports are played.



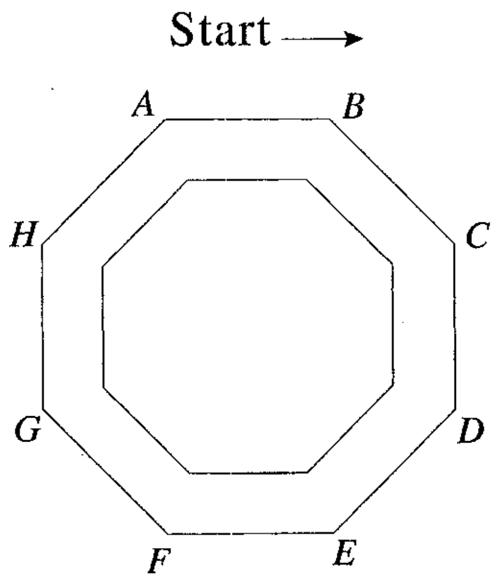
Which Is Which?



The dashed square represents one acre. Each side is just under 209 feet long, giving an area of about 43,560 square feet. The other figures are sports areas.



Where Are You?



Before each question, begin at vertex *A*.

1. Where will you be when you have gone $\frac{7}{8}$ of the way around the octagon?

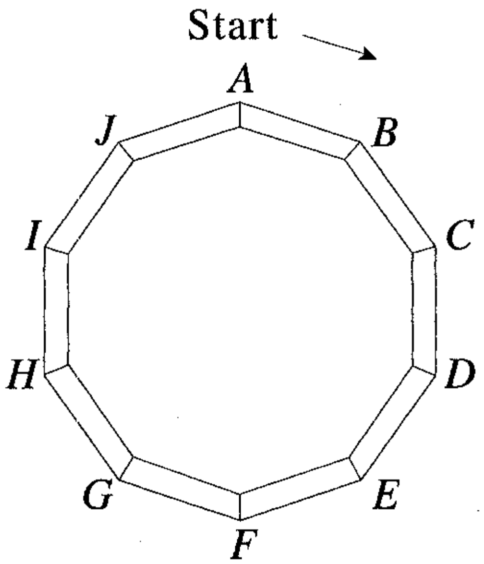
2. Place your finger on a vertex. How far will you have gone when you have reached that vertex? How much farther do you have to go to make a complete trip?

3. Where would you be if you went almost but not quite half the distance around the octagon?

4. Where would you be if you went about $\frac{1}{3}$ of the distance around?

5. Suppose the distance around the octagon is 1200 meters. About how many meters would you have traveled if you were $\frac{1}{5}$ of the way around? Where would you be?

Where Are You?



Before each question, begin at vertex *A*.

1. Place your finger on a vertex. How far will you have gone when you reach that vertex? How much farther do you have to go to make a complete trip?

2. Where will you be when you have gone between $\frac{3}{10}$ and $\frac{4}{10}$ of the distance around the decagon? Name a decimal and a fraction to describe your location.

3. Where will you be when you have gone between $\frac{8}{10}$ and $\frac{9}{10}$ of the distance around? Name a fraction and a decimal to describe your location.

4. About where would you be if you went $\frac{2}{3}$ of the distance around? Name a decimal to describe your location.

5. Suppose the distance around the decagon was 1 kilometer. About where will you be when you have gone more than $\frac{1}{4}$ but less than $\frac{1}{3}$ of the distance around? How would you write this as a decimal? About how many meters have you traveled?

EXPERIENCE 18

Which Is Largest?

Number Sense Focus

- Relative size
- Number relationships
- Mental computation

Number Focus

- Activity 1: Whole numbers and fractions
- Activities 2–3: Whole numbers, decimals, and fractions

Mathematical Background

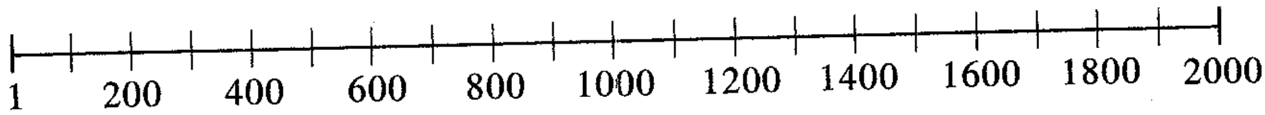
Equivalent mathematical expressions can look different, such as 10^3 and 1000 or 6! and $6 \times 5!$. Other expressions, such as 3^4 and 4^3, look similar but are not equal. Students must learn to examine such expressions carefully.

Using the Activities

These activities provide practice in interpreting similar expressions through the use of mental computation.

1. As a warm-up, show a few pairs of representations—such as 45 and 54, $\frac{3}{7}$ and $\frac{7}{3}$, or $5\frac{4}{9}$ and $\frac{54}{9}$—and ask students to describe what each pair has in common and how each pair is different.
2. Show the pairs of numbers in Activity 1. Make sure students understand that they are to find the equivalent pairs and to find the largest expression in each of the other pairs. Encourage them to look at the values and find an easy way to decide rather than to compute. Let students share their reasoning.
3. Follow a similar procedure for Activity 2. Some of the exercises in Activity 3 may require computation, but the primary purpose of these activities is to encourage students to think about the numbers rather than to compute with them.

When Did It Happen?



Decide about where the following events should be placed on this timeline of the first through the twentieth centuries.

1. our current calendar was established
2. The Hundred Years' War
3. Shakespeare lived
4. Michelangelo lived
5. Albert Einstein lived
6. Muhammad lived
7. start of the twenty-first century
8. Martin Luther King Jr. lived
9. Sir Isaac Newton lived
10. Alfred Nobel lived

Solutions

Given here are possible ways to reason about the problems.

Activity 1

1. $51 + 53 + 49 + 54$ because each of the four numbers is greater than 45.
2. $4 \times 3\frac{2}{5}$ because you are multiplying by something larger than 3.
3. $8 \times (2 + 3)$ because you are multiplying the 3 by 8.
4. equivalent pair
5. $15 \div \frac{2}{3}$ because division by $\frac{2}{3}$ produces a result larger than multiplication.
6. 170×50 because the other product is 0.
7. $400 \times 100 - 100$ because the other product is 0.
8. $\frac{3}{5} \div \frac{1}{2}$ because the divisor is less than the dividend.
9. equivalent pair
10. $25 \times 4 \times 85$ because $25 \times 4 > 80$.

Activity 2

1. 4 because each of the four addends is less than 1.
2. 1 because the divisor, $\frac{2}{3}$ is larger than the dividend, $\frac{1}{2}$, so the quotient is less than 1.
3. equivalent pair
4. $\frac{1}{2}(80 \times 200)$ because 20 is less than 200.
5. $35 \div 0.2$ because 0.2 is less than 0.7.
6. $360 \times \frac{4}{5}$ because $\frac{4}{5}$ is greater than $\frac{3}{4}$.
7. 1.2×2.7 because 1.2 is greater than 1.18.
8. 1 because both factors are between 0 and 1 so the product is less than 1.
9. 2 because three of the four addends are less than $\frac{1}{2}$.
10. 30×1.1 because 1.1 is greater than 0.988.

Activity 3

1. 2^1 because $2 > 1$.
2. 3^2 because $9 > 8$.
3. 4^5 because $1016 > 625$.
4. 2^6 because $64 > 36$.
5. 2^0 because $1 > 0$.
6. 25% of 100 because $100 > 95$.
7. equivalent pair
8. equivalent pair
9. 15% of 80 because $12 > 6$.
10. 100% of 450 because $450 > 4.5$.

Extending the Activities

- Ask students to construct numbers that look different but represent the same value (such as 4^2 and 2^4 or 3×4^2 and $96 \div 2$).
- Ask students to construct a computation (such as 800×0.45) and write other ways to represent it (80×4.5 or 8×45).
- Ask students to arrange the following in order of size: 33, 3^3, 3×3, 3.3, $3 \times 3!$, $\frac{3}{3}$, 33!, and .33.
- Challenge students to make as many different expressions as possible using three 2s and then arrange them in order of size.

Which Is Largest?

Find which of the following pairs of numbers are equivalent. For the other pairs, tell which is greater, and explain how you know.

1. 45×4

   $51 + 53 + 49 + 54$

2. $4 \times 3\frac{2}{5}$

   $4 \times 2\frac{3}{5}$

3. $8 \times (2 + 3)$

   $8 \times 2 + 3$

4. $80 \times 20 \times 5$

   $8 \times 2 \times 500$

5. $15 \times \frac{2}{3}$

   $15 \div \frac{2}{3}$

6. $17 \times 0 \times 50$

   170×50

7. $400 \times 100 - 100$

   $400 \times (100 - 100)$

8. $\frac{1}{2} \div \frac{3}{5}$

   $\frac{3}{5} \div \frac{1}{2}$

9. $2 \times 30 + 30$

   3×30

10. $25 \times 4 \times 85$

    80×85

Which Is Largest?

Find which of the following pairs of numbers are equivalent. For the other pairs, tell which is greater, and explain how you know.

1. $\frac{2}{3} + \frac{3}{4} + \frac{4}{5} + \frac{5}{6}$

   4

2. $\frac{1}{2} \div \frac{2}{3}$

   1

3. 12.5×45

   4.5×125

4. $80 \times 20 \times 0.5$

   $\frac{1}{2}\ (80 \times 200)$

5. $35 \div 0.2$

   $35 \div 0.7$

6. $360 \times \frac{3}{4}$

   $360 \times \frac{4}{5}$

7. 1.2×2.7

   1.18×2.7

8. $\frac{3}{5} \times \frac{6}{7}$

   1

9. $\frac{1}{3} + \frac{2}{4} + \frac{2}{5} + \frac{5}{11}$

   2

10. 30×1.1

    30×0.988

Which Is Largest?

Find which of the following pairs of numbers are equivalent. For the other pairs, tell which is greater, and explain how you know.

1. 2^1

   1^2

2. 3^2

   2^3

3. 4^5

   5^4

4. 6^2

   2^6

5. 2^0

   0^2

6. 25% of 95

   25% of 100

7. 15% of 85

   0.15×85

8. 15% of 60

   60% of 15

9. 7% of 40 + 8% of 40

   15% of 80

10. 100% of 450

    0.1% of 4500

How Many Friday the Thirteenths?

January

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

February

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29			

March

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

April

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

May

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

June

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

July

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

August

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

September

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

October

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

November

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

December

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

How Many Friday the Thirteenths?

1. What is the first Friday the thirteenth for the year shown in the calendar?

2. In the year shown, there are _____ thirteenths, _____ Fridays, and _____ Friday the thirteenths.

3. Choose a month. Decide on what day January 1 would need to fall for a Friday the thirteenth to occur in the month you chose. Would a leap year affect your answer? If so, how?

4. Could Friday the thirteenth ever occur in consecutive months? Explain.

5. Could Halloween ever occur on Friday the thirteenth?

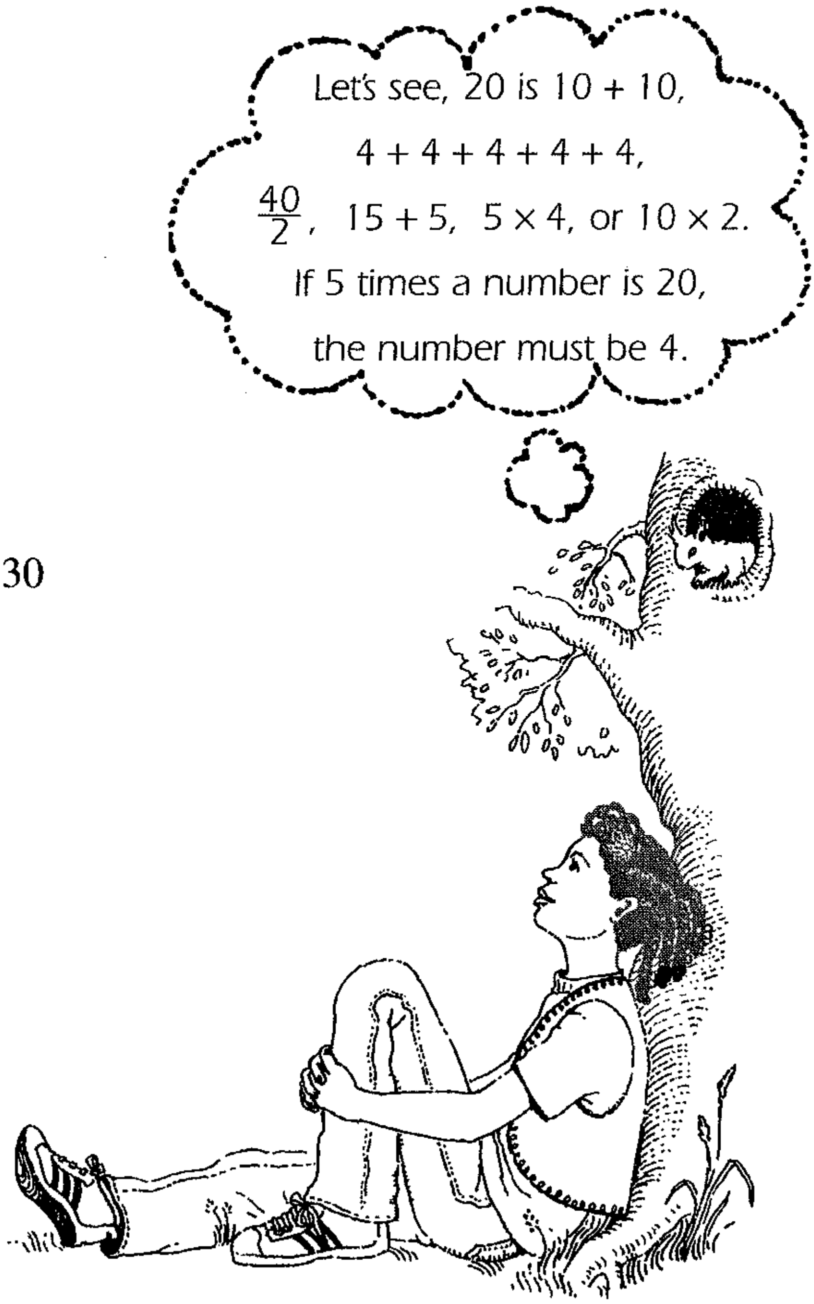
6. Must every year have at least one Friday the thirteenth? If so, what is the latest month in the year that Friday the thirteenth could occur?

7. What is the greatest number of Friday the thirteenths that could occur in a year? Explain.

Thinking About Numbers

Think about each equation. Then, use what you know about numbers to find the value of *A*. Tell what representation you used.

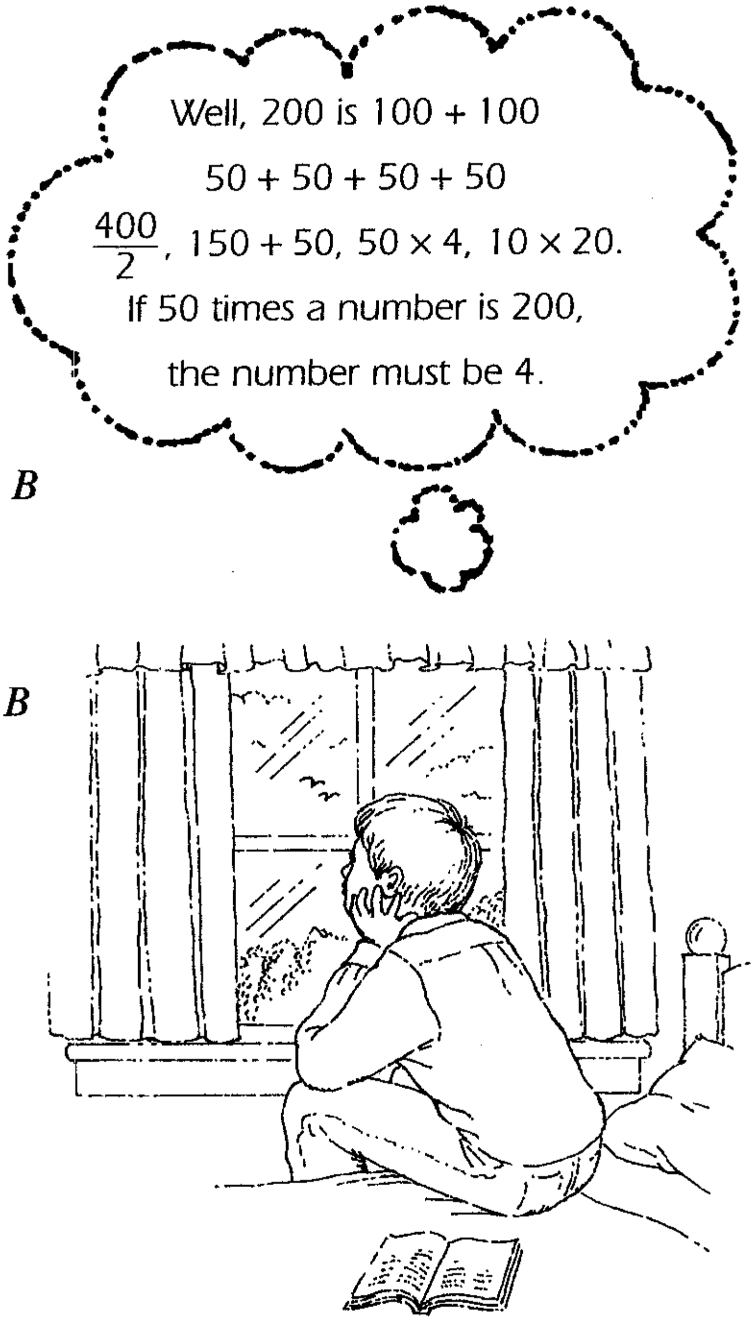
1. $50 \times A = 100$
2. $855 \times A = 855$
3. Zero is 87 times *A*.
4. $8 \times A = 2 \times 2 \times 2 \times 2$
5. $A + 64 = 32 + 32 + 32$
6. $2A + 100 = 40 + 60 + 30$
7. $499 + A = 250 + 250$
8. $225 = A \times 5 \times 5$
9. $\$0.95 + A = \$5.00$
10. $\$10.00 = \$8.99 + A$



Thinking About Numbers

Think about each equation. Then, use what you know about numbers to find the value of *B*. Tell what representation you used.

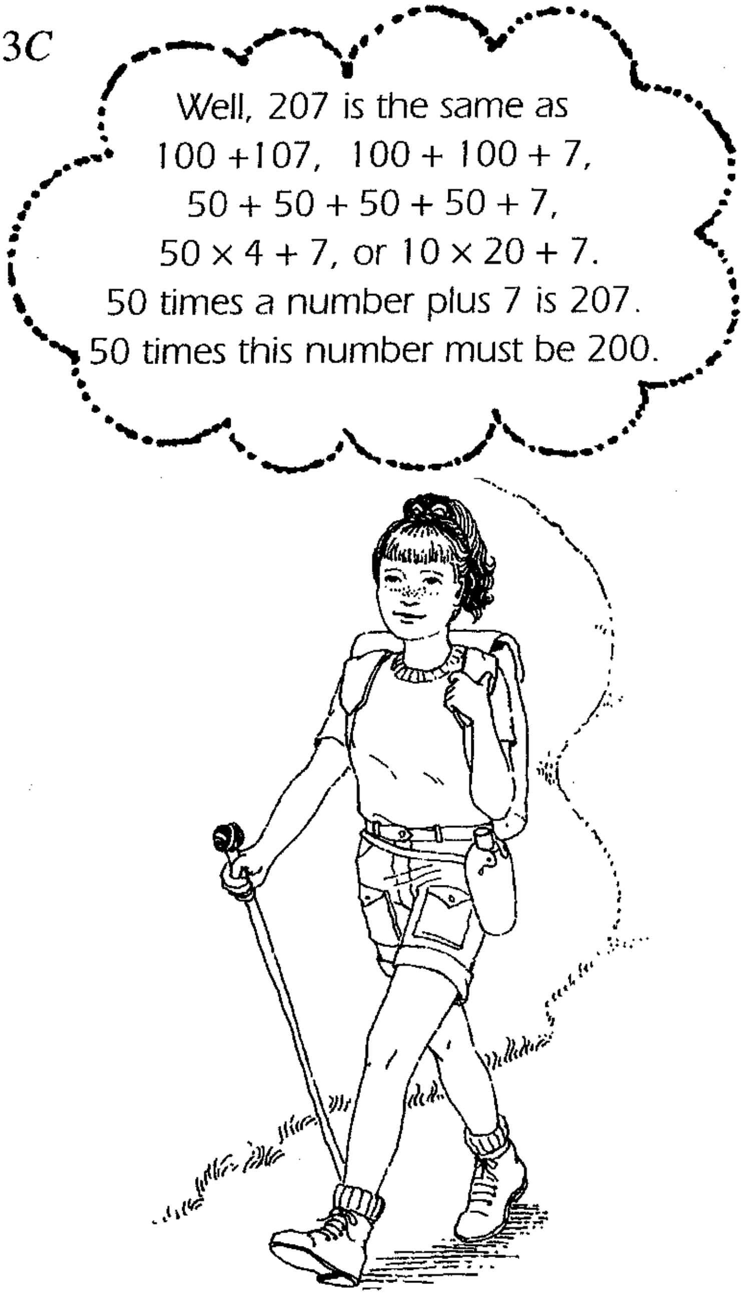
1. $50 \times B = 250$
2. $371 = B + 301$
3. $4 \times 4 \times B = 64$
4. $75 + 25 = 50 + B$
5. $300 + 425 + 700 = 1400 + B$
6. $80 \times 40 = 3000 + B$
7. $5 \times 5 \times 5 \times 5 \times 5 = 125 \times B$
8. $4 \times 250 = 1000 + B$
9. $8 \times \$1.25 = B$
10. $\$10.00 = \$8.88 + B$



Thinking About Numbers

Think about each equation. Then, use what you know about numbers to find the value of *C*. Tell what representation you used.

1. $50 + 50 + 75 + 25 = 125 + 3C$
2. $25 \times 4 = 4C + 80$
3. $30 \times 6 = 6 \times (5 + C)$
4. $99 \times 8 = 800 - C$
5. $1000 + C = 2 \times 510$
6. $400 \times 7 = 3000 - C$
7. $2 \times C - 50 = 1400 - 50$
8. $6 \times C + 1 = 4800 + 1$
9. $2 \times \$3.99 = \$5.00 + C$
10. $\$20.00 - 4 \times \$4.99 = C$



Thinking About Numbers

Think about each equation. Then, use what you know about numbers to find the value of D. Tell what representation you used.

1. If $8 \times 5 = D \times 2 \times 4 \times 5$, then $D =$

2. If $16 \times 5 \times 8 \times D = 0$, then $D =$

3. If $4 = 80 \div D$, then $D =$

4. If $0 = 5 \times 100 - 100D$, then $D =$

5. If $4 \times 80 = 40 \times D$, then $D =$

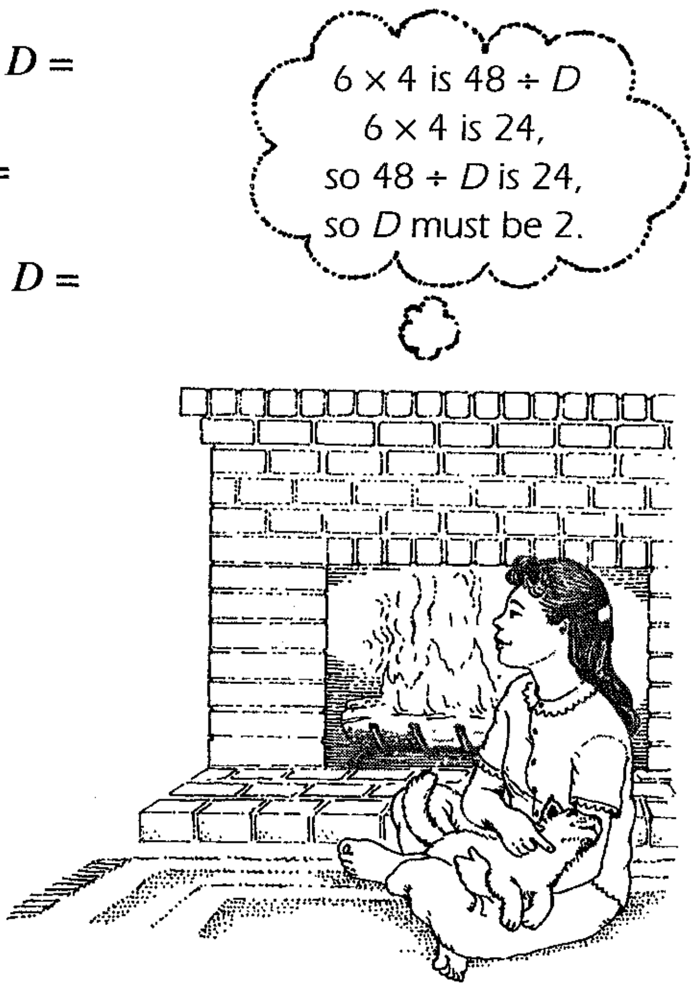
6. If $2 \times 25 \times 2 = 90 + D$, then $D =$

7. If $2 + D = 2 \times D$, then $D =$

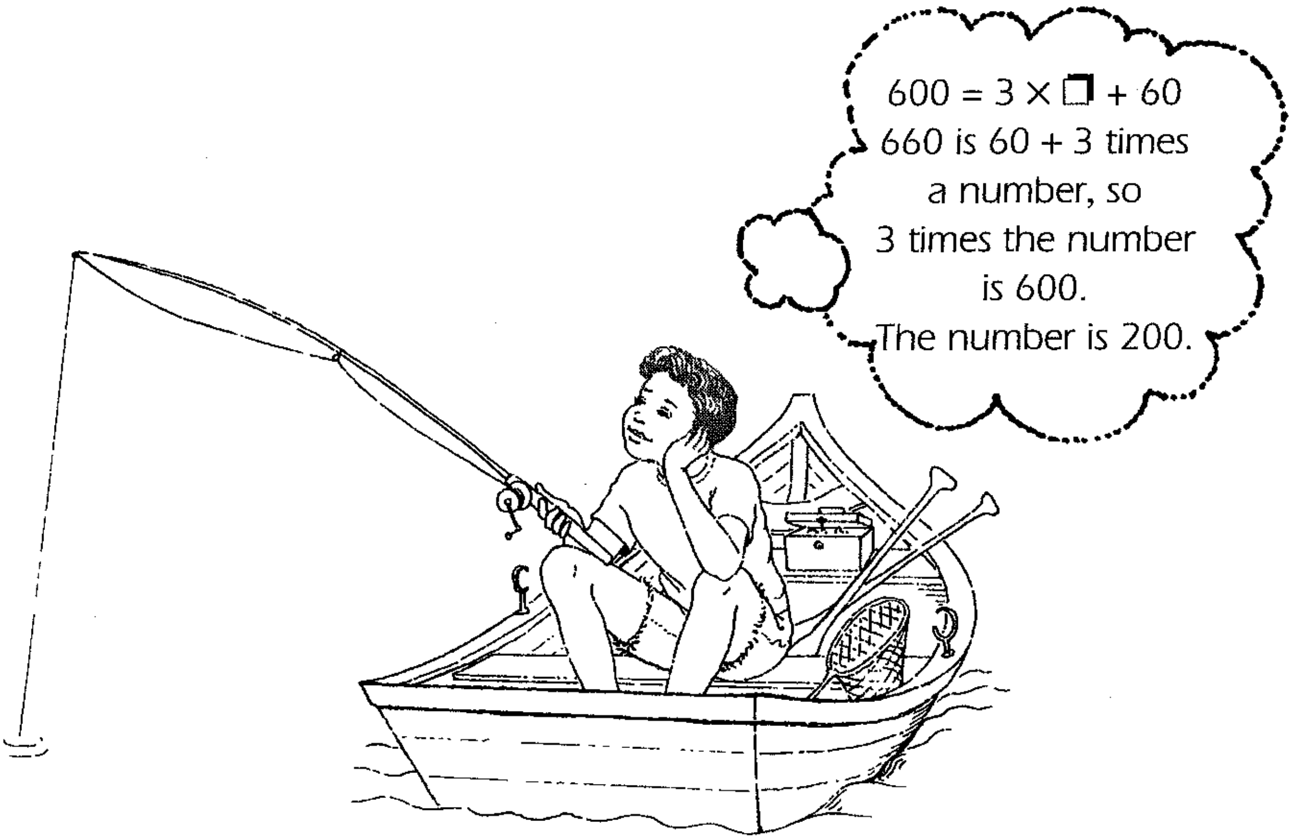
8. If $9 + D = 2 \times D$, then $D =$

9. If $6 + D = 3 \times D$, then $D =$

10. If $10 + D = 3 \times D$, then $D =$



Thinking About Equations



Try to solve these equations in your head.

1. If $4 \times 80 = \square + 20$, then $\square =$

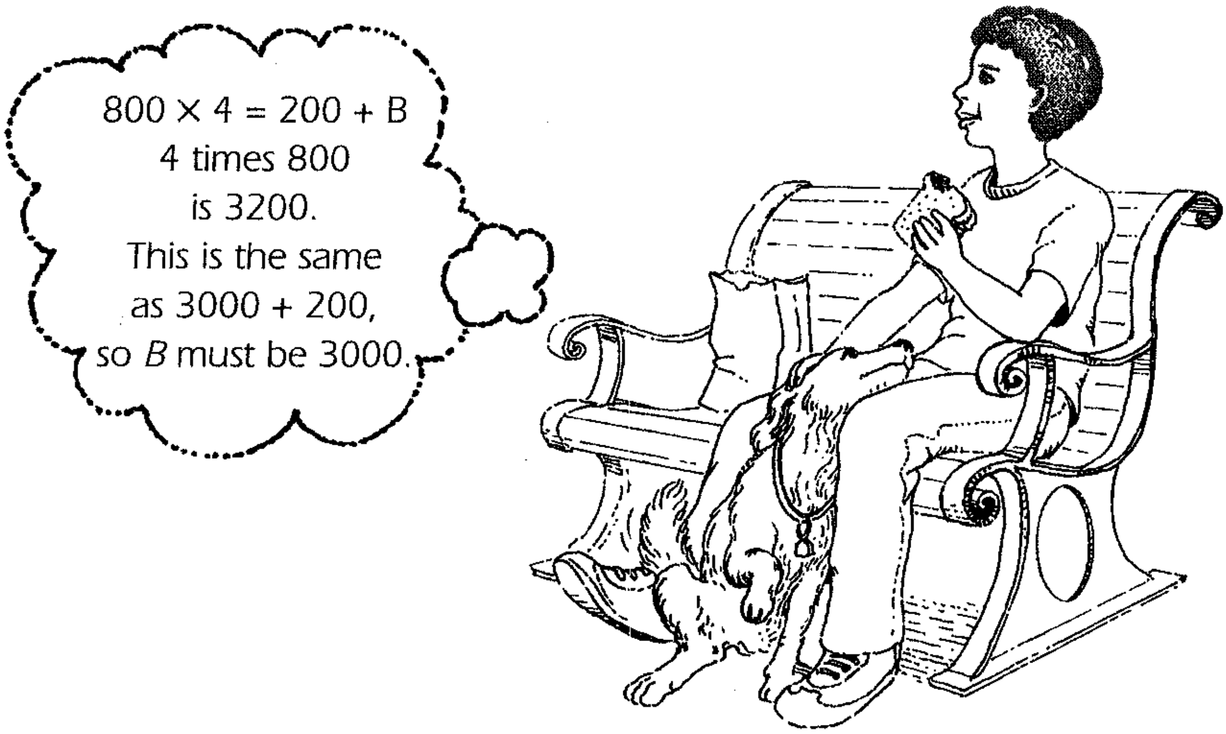
2. If $150 + 300 = 3 \times \square$, then $\square =$

3. If $4 \times 80 = 400 - \square$, then $\square =$

4. If $80 + 80 \times \square = 160$, then $\square =$

5. If $\square + 400 = 3 \times \square$, then $\square =$

Thinking About Equations



Try to solve these equations in your head.

1. If $400 + (2 \times B) = 600$, then $B =$

2. If $800 + 80 \times B = 1600$, then $B =$

3. If $10{,}000 - (200 \times B) = 8000$, then $B =$

4. If $(800 + 600) \div B = 700$, then $B =$

5. If $(600 \times 5) \times B = 3000$, then $B =$

Exploring Number Relationships

$\frac{1}{2}$ 50

$49\frac{1}{2} + \frac{1}{2} = 50$

$\frac{1}{2}$ is 50%

$\frac{1}{2}$ of 100 is 50

100 halves is 50

$25 \div 50 = \frac{1}{2}$

2 5

5 is 3 more than 2

2 is 3 less than 5

2 is $\frac{2}{5}$ of 5

$2\frac{1}{2} \times 2 = 5$

3 4 5

three consecutive numbers

the middle number is 4

the sides of a right triangle

three numbers whose mean is 4

2 20

2 is 10 times smaller than 20

$2 + 18 = 20$

2 is $\frac{1}{10}$ of 20

$2 \times 10 = 20$

$2 \div 0.1 = 20$

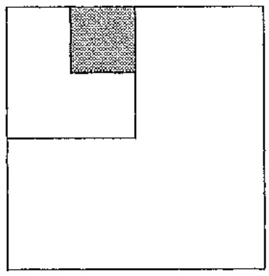
Every number is related to other numbers in many ways. The recognition of multiple relationships among numbers is one of the hallmarks of people with good number sense.

Recognizing relationships between numbers often makes a calculation simpler. For example, we can reason about 19×8 in many ways:

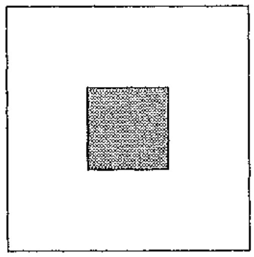
- $8 = 2 \times 2 \times 2$, so $19 \times 8 = 19 \times 2 \times 2 \times 2$, which is the same as double 19 to get 38, then double 38 to get 76, then double 76 to get 152.
- $19 = 20 - 1$, so $19 \times 8 = 20 \times 8 - 1 \times 8 = 160 - 8 = 152$.
- $19 = 10 + 9$, so $19 \times 8 = 10 \times 8 + 9 \times 8 = 80 + 72 = 152$.

Finding Fractions

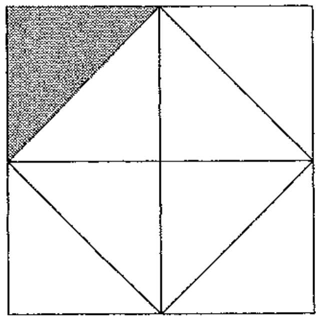
1. What fraction of the large square is shaded?



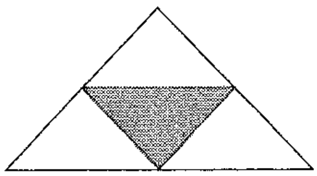
2. What fraction of the large square is shaded?



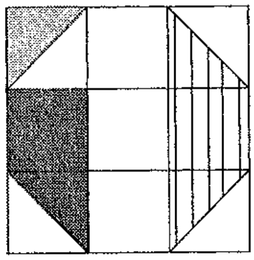
3. What fraction of the large square is shaded?



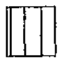
4. What fraction of the large triangle is shaded?



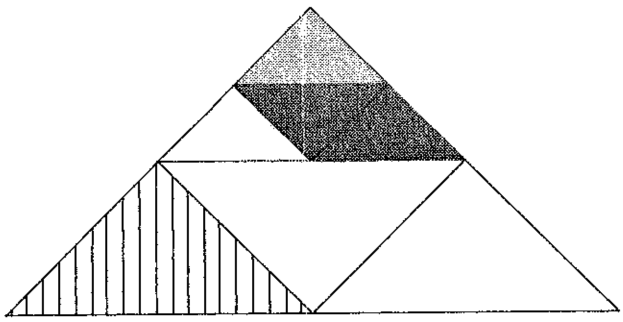
Finding Fractions



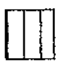
1. What fraction of the large square is shaded  ?

   What fraction is shaded  ?

   What fraction is shaded  ?



2. What fraction of the large triangle is shaded  ?

   What fraction is shaded  ?

   What fraction is shaded  ?